SCHOOL CLOSE-UP

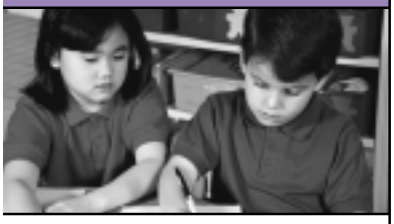
ENERGYSMART SCHOOL CLOSE-UP

Portland Public School District:

Oregon District Successfully Completes Extensive Energy Retrofits

EnergySmart School Close-Ups highlight schools and school districts that have found ways to use energy more wisely, lowering their energy bills and raising awareness of energy issues.

- ✓ Improving Existing Buildings
- ✓ Financing Building Improvements
- ✓ Operating and Maintaining Buildings
- ❑ Designing New Buildings
- ❑ Teaching and Learning
- ❑ Using Renewable Energy Technologies
- ❑ Using Alternatively Fueled School Buses



Energy$mart Schools

A Campaign of Rebuild America
U.S. Department of Energy

As the largest school district in Oregon, Portland Public Schools' utility bills in the early 1990s exceeded $6 million annually. This enormous expense inspired district officials to launch a substantial energy efficiency program—now saving the district more than $1 million each year in avoided costs.

An ambitious seven-year plan

One of Portland Public Schools' early steps was to hire an energy engineer to plan and carry out an aggressive energy retrofit program fueled by utility incentives and an innovative funding mechanism arranged in partnership with the Oregon Office of Energy. This ambitious seven-year plan called for phased improvements—largely during summer vacations—to more than 90 buildings at 65 locations. It encompassed lighting improvements, heating and cooling system upgrades, carbon dioxide sensors on ventilation systems, better insulation, and digital controls to ensure building systems functioned optimally. Its estimated cost, however, was a sizable $20 million.

Careful financing

Instead of a bond issuance, district officials opted to pursue a less challenging and time-consuming option: a low-interest loan through the Oregon Office of Energy. To accommodate the district's seven-year project, the Office developed an approach similar to a line of credit—an overall loan agreement for $20 million, followed by specific addenda for each of the seven years or phases. This approach not only ensured funding and minimized district time spent on loan issues, but engaged the school board in an annual discussion of energy improvements—a step that helped secure its ongoing commitment to reducing energy consumption.

To ensure a minimum repayment equal to debt service ratio, each of the seven phases required a separate energy study reviewed by the Office of Energy. These studies, as well as design fees, equipment, and staff training, were eligible costs under the terms of the loan. Repayment began within 30 days of each phase's last draw.

PROFILE:

Location:
Portland, Oregon

District size:
57,000 students, 93 schools

Energy project scope:
Retrofits in 70 buildings include lighting, energy management systems, HVAC systems, insulation, and operations and maintenance improvements

Date completed:
Lighting completed 1996; Energy Management System in 2000; and HVAC System Phase I in 2000. Completion of HVAC Phase II scheduled for 2010.

Energy saved:
33,700 MBtus annually

Dollars saved:
Approximately $500,000 annually in actual savings, and more than $1 million annually in avoided costs

Project funding:
The Oregon Office of Energy—Small Scale Energy Loan Program; Portland General Electric; Pacific Power Company; Northwest Natural; Climate Neutral Network

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See the EnergySmart Schools Web site at:
www.eren.doe.gov/energysmartschools

Or call the Energy Efficiency and Renewable Energy Clearinghouse (EREC) at: 1-800-DOE-3732

Funds for the loan repayment came from the district's utility budget—from the funds that would have been spent on direct energy costs and related operations without the energy improvements. These savings were verified by a computerized utility tracking system and reviewed annually by Office of Energy staff. In its first six years, the energy program saved an estimated $9 million in avoided costs.

In eight years, the district has borrowed approximately $8 million. All of the district's actual energy savings go to loan repayment. The district anticipates the loans to be repaid by 2008. After that, the district will keep all the energy savings.

Hiring Resource Conservation Managers

To hire an energy engineer to plan and carry out its energy program, Portland Public Schools tapped into an innovative program offered by its utility company, Portland General Electric (PGE). Like many other utilities, PGE guaranteed the salary of a new district employee whose job was to reduce energy use. Called a Resource Conservation Manager or RCM, the employee would focus on improving operation and maintenance of district buildings. If the district's annual energy savings did not equal the RCM's salary, the utility would pay the difference. Portland actually brought two RCMs on board on contract for four years.

By the end of the RCMs' first year with the district, Portland schools' energy savings equaled nearly two times the two RCM salaries. They had accomplished these savings by simple but critical tasks: training facilities personnel, ensuring that building systems were functioning properly, and by instituting clear maintenance procedures and operating schedules. The RCMs remained and, by 1996, had developed 100 site-specific plans for achieving much greater savings. At the end of three years, the RCMs had achieved $1.3 million in savings attributable to behavioral changes in the schools.

At the end of the seven-year energy program, the district decided to continue its conservation efforts, creating a resource conservation program aimed at all resources—water, solid waste, transportation, and energy. In 1999, it hired one RCM to permanently join the energy engineer. To date, the new RCM has captured $280,000 in actual savings for the district, while the original resource conservation program continues to avoid over $1 million in utility costs.

The EnergySmart Schools campaign is operated by Rebuild America, through the U.S. Department of Energy's Office of Building Technology, State and Community Programs.

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